

What is claimed is:

- 1 1. A database update method, comprising:
  - 2 receiving a database change command;
  - 3 determining one or more portions of a target database that will be
  - 4 affected by the change command;
  - 5 creating one or more shadow portions of the determined one or more
  - 6 portions;
  - 7 changing the one or more shadow portions in accordance with the change
  - 8 command;
  - 9 executing the change command against the target database;
  - 10 swapping the one or more shadow portions for the determined one or
  - 11 more portions,
  - 12 wherein the act of creating and changing occur before the act of
  - 13 executing and further wherein said database update method does not cause a
  - 14 user outage.
- 1 2. The method of claim 1, wherein the target database comprises a DB2
- 2 partitioned database.
- 1 3. The method of claim 2, wherein the database change command comprises
- 2 an ALTER command.

- 1 4. The method of claim 2, wherein the determined one or more portions  
2 comprise one or more partitions.
- 1 5. The method of claim 1, wherein act of creating comprises unloading the  
2 determined one or more portions into work files.
- 1 6. The method of claim 5, wherein the act of updating comprises updating  
2 the work files in accordance with the change command into one or more shadow  
3 portions.
- 1 7. The method of claim 1, wherein the act of updating further comprises  
2 updating the one or more shadow portions to incorporate changes in the target  
3 database occurring since said act of receiving and before said act of executing.
- 1 8. The method of claim 7, wherein target database log files are used to drive  
2 said act of updating the one or more shadow portions to incorporate changes in  
3 the target database occurring since said act of receiving and before said act of  
4 executing.
- 1 9. The method of claim 1, further comprising establishing a lock on the  
2 target database after said act of executing and before said act of swapping.

1 10. The method of claim 9, further comprising removing a restricted state  
2 status from at least one of the determined one or more portions resulting from  
3 the act of executing, said act of removing occurring before the act of swapping.

1 11. The method of claim 10, wherein the act of removing is performed after  
2 the act of establishing.

1 12. The method of claim 1 further comprising committing the change  
2 command, said act of committing to be performed before the act of swapping.

1 13. A program storage device, readable by a programmable control device,  
2 comprising instructions stored on the program storage device for causing the  
3 programmable control device to:  
4 receive a database change command;  
5 determine one or more portions of a target database that will be affected  
6 by the change command;  
7 create one or more shadow portions of the determined one or more  
8 portions;  
9 change the one or more shadow portions in accordance with the change  
10 command;  
11 execute the change command against the target database;

12 swap the one or more shadow portions for the determined one or more  
13 portions,

14 wherein the instructions to create and change are performed before the  
15 instructions to execute and further wherein said instructions to receive,  
16 determine, create, change, execute and swap do not cause a user outage.

1 14. The program storage device of claim 13, wherein the target database  
2 comprises a DB2 partitioned database.

1 15. The program storage device of claim 14, wherein the database change  
2 command comprises an ALTER command.

1 16. The program storage device of claim 14, wherein the instructions to  
2 determine one or more portions comprise instructions to determine one or more  
3 partitions.

1 17. The program storage device of claim 13, wherein instructions to create  
2 comprise instructions to unload the determined one or more portions into work  
3 files.

1 18. The program storage device of claim 17, wherein the instructions to  
2 change comprise instructions to change the work files in accordance with the  
3 change command into one or more shadow portions.

1 19. The program storage device of claim 13, wherein the instructions to  
2 update further comprise instructions to update the one or more shadow portions  
3 to incorporate changes in the target database occurring since performing the  
4 instructions to receive and before performing the instructions execute.

1 20. The program storage device of claim 19, wherein target database log files  
2 are used to drive said instructions to update the one or more shadow portions to  
3 incorporate changes in the target database occurring since performing the  
4 instructions to receive and before performing the instructions execute.

1 21. The program storage device of claim 13, further comprising instructions to  
2 establish a lock on the target database after performing said instructions to  
3 execute and before performing said instructions to swap.

1 22. The program storage device of claim 21, further comprising instructions to  
2 remove a restricted state status from at least one of the determined one or more  
3 portions resulting from performing the instructions to execute, said instructions  
4 to remove being performed before said instructions to swap.

1 23. The program storage device of claim 22, wherein the instructions to  
2 remove are performed after the instructions to establish.

1 24. The program storage device of claim 13 further comprising instructions to  
2 commit the change command, said instructions to commit to be performed  
3 before the instructions to swap.

1 25. A database system, comprising:  
2 a storage device having stored thereon a database, said first database  
3 having a plurality of partitions; and  
4 a computer unit operatively coupled to the storage device, the computer  
5 unit including a processor and a memory, the memory having stored thereon  
6 instructions for causing the processor to:  
7 receive a database change command directed to the database,  
8 determine one or more partitions of the database that will be  
9 affected by the change command,  
10 create one or more shadow partitions of the determined one or  
11 more partitions,  
12 change the one or more shadow partitions in accordance with the  
13 change command,  
14 execute the change command against the database,

15 swap the one or more shadow partitions for the determined one or  
16 more partitions,  
17 wherein the instructions to create and change are performed  
18 before the instructions to execute and further wherein said instructions to  
19 receive, determine, create, change, execute and swap do not cause a  
20 user outage to the database.

1 26. The database system of claim 25, wherein the database comprises a DB2  
2 database.

1 27. The database system of claim 26, wherein the database change command  
2 comprises an ALTER command.

1 28. The database system of claim 25, wherein the instructions to create  
2 comprise instructions to:  
3 unload the determined one or more partitions into one or more work files;  
4 and  
5 change the work files in accordance with the change command into the  
6 one or more shadow partitions.

1 29. The database system of claim 25, wherein the instructions to update  
2 further comprise instructions to update the one or more shadow partitions to  
3 incorporate changes in the database occurring since performing the instructions  
4 to receive and before performing the instructions execute.

1 30. The database system of claim 29, wherein database log files are used to  
2 drive said instructions to update the one or more shadow partitions to  
3 incorporate changes in the database occurring since performing the instructions  
4 to receive and before performing the instructions execute.

1 31. The database system of claim 25, wherein the instructions further  
2 comprise instructions to establish a lock on the database after performing said  
3 instructions to execute and before performing said instructions to swap.

1 32. The database system of claim 31, wherein the instructions further  
2 comprise instructions to remove a restricted state status from at least one of the  
3 determined one or more partitions resulting from performing the instructions to  
4 execute, said instructions to remove being performed before said instructions to  
5 swap.

1 33. The database system of claim 32, wherein the instructions to remove are  
2 performed after the instructions to establish.

1 34. The database system of claim 25, wherein the instructions further  
2 comprise instructions to commit the change command, said instructions to  
3 commit to be performed before the instructions to swap.

1 35. The database system of claim 25, wherein the storage device comprise  
2 one or more direct access storage devices.

1 36. The database system of claim 35, wherein the one or more direct access  
2 storage devices are operatively coupled to the computer unit by a computer  
3 network.

1 37. The database system of claim 36, wherein the computer network  
2 comprises the Internet.

1 38. The database system of claim 36, wherein the computer network  
2 comprises an intranet.